

Our Reference: GP-302117-OST-ALS

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Appellants:	Jeffrey M. Stefan, et al.
Serial Number:	10/077,013
Filing Date:	February 13, 2002
Confirmation No.:	1333
Examiner/Group Art Unit:	Nghi H. Ly/2617
Title:	METHOD FOR BROADCAST FILTERING USING CONVEX HULLS

**SUBSTITUTE APPEAL BRIEF**

Mail Stop Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Pursuant to MPEP § 1208(I), please enter the following Reply Brief as a Substitute Appeal Brief replacing the original Appeal Brief filed on May 16, 2006.

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## I. REAL PARTY IN INTEREST

The real party in interest is Assignee General Motors Corporation, a corporation having an office and a place of business at 300 Renaissance Center, Detroit, Michigan, 48265-3000.

## II. RELATED APPEALS AND INTERFERENCES

Appellants and the undersigned attorneys are not aware of any appeals or any interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

## III. STATUS OF CLAIMS

Claims 1-22 are the claims on appeal. See, Appendix.

Claims 1-3, 7-11, 15-17, 20 and 21 were rejected (in the Final Office Action of February 24, 2006) under 35 U.S.C. § 103(a) as being unpatentable over United States Patent Number 6,819,268 to Wakamatsu, et al. ("*Wakamatsu*") in view of United States Patent Number 6,249,252 to Dupray ("*Dupray*").

Claims 4-6, 12-14, 18 and 19 were rejected (in the Final Office Action of February 24, 2006) under 35 U.S.C. § 103(a) as being unpatentable over *Wakamatsu* in view of *Dupray*, and further in view of United States Patent Number 5,627,549 to Park ("*Park*")

Claim 22 was rejected (in the final Office Action of February 24, 2006) under 35 U.S.C. § 103(a) as being unpatentable over *Wakamatsu* in view of *Dupray*, and further in view of United States Patent Number 6,546,257 to Stewart ("*Stewart*").

#### IV. STATUS OF AMENDMENTS

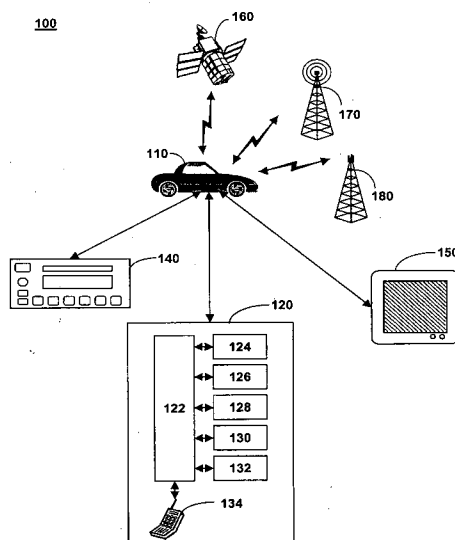
In response to the Final Office Action of February 24, 2006, no amendment pursuant to 37 C.F.R. § 1.116 was filed.

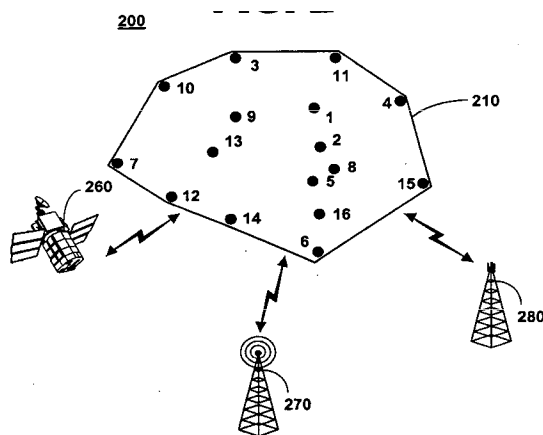
#### V. SUMMARY OF CLAIMED SUBJECT MATTER

In this summary of claimed subject matter, all citations are to the specification of United States Patent Application 10/077,013.

Pending claims 1-8 and 21-22 are directed to method(s) of providing information to a mobile vehicle user, claims 9-16 are directed to a computer usable medium including a program for providing information to a mobile vehicle user, and claims 17-20 are directed to a system for providing information to a mobile vehicle user. With general reference to Figure 1, reproduced below, common elements of each claim include a mobile vehicle 110, broadcast information comprising information location coordinate data, and a convex hull 210 (shown in Fig. 2, also reproduced below) within which the coordinate data may reside.

**FIGURE 1**



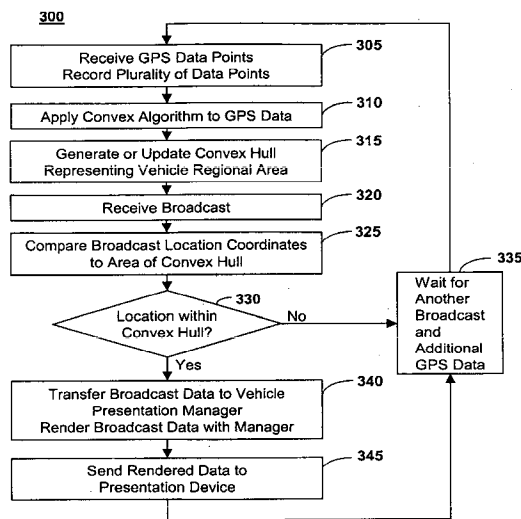


**FIGURE 2**

Recitation of the claimed subject matter may be found at least at the locations in the specification and the drawings as cited below.

**A. Independent Claim 1**

Claim 1 is an independent claim directed to a method of providing information to a mobile vehicle user. With specific reference to Figure 3 (reproduced below), the method includes receiving broadcast information at the mobile vehicle (Block 320), wherein the broadcast information comprises information location coordinate data. (Page 13, lines 10-18.) The method further includes determining whether the information location coordinate data resides within a convex hull (Block 330). (Page 13, lines 26-30.) The method also includes presenting the broadcast information to the mobile vehicle user based on the determination (Blocks 340 and 345). (Page 14, lines 16-25.)



**FIGURE 3**

***B. Independent Claim 9***

Claim 9 is an independent claim directed to a computer usable medium including a program for providing information to a mobile vehicle user. As generally found on page 10, line 24 through page 11, line 6, and on page 7, lines 2-4, the computer usable medium includes a computer program code to receive broadcast information at the mobile vehicle, wherein the broadcast information comprises information location coordinate data. The computer usable medium further includes a computer program code to determine whether the information location coordinate data resides within a convex hull, and a computer program code to present the broadcast information to the mobile vehicle user based on the determination.

***C. Independent Claim 17 and Dependent Claims 18-20***

Claim 17 is an independent claim directed to a system for providing information to a mobile vehicle user. With general reference again to Figure 1, the system 100

includes means (e.g., digital signal processor 122) (see generally page 7, lines 2-12) for receiving broadcast information at the mobile vehicle 110, wherein the broadcast information comprises information location coordinate data and at least one data string (see page 10, lines 26-29). The system 100 further includes means (e.g., telematics unit 120 or digital signal processor 122) for determining whether the information location coordinate data resides within a convex hull 210 (shown in Fig. 2). (See page 10, line 26 through page 11, line 6). The system 100 also includes means (e.g., speaker 132, audio device 140, or visual display device 150) for presenting the broadcast information to the mobile vehicle user based on the determination. (See page 8, lines 2-8.)

Claims 18-20 are claims depending directly from independent claim 17. Claim 18 includes means (e.g., digital signal processor 122) for recording a plurality of vehicle location coordinates (see page 10, lines 2-4 and page 11, lines 15-23). Claim 18 further includes means (e.g., digital signal processor 122) for generating the convex hull 210 from the recorded vehicle location coordinates (see page 10, lines 4-6).

Claim 19 includes means (e.g., GPS unit 126 and/or digital signal processor 122) for updating the convex hull 210 based on a coordinate input (see page 11, line 24 through page 12, line 5).

Claim 20 includes means (e.g., telematics unit 120) for transferring the broadcast information to a vehicle presentation manager (which is contained in the telematics unit 120) (see page 14, lines 16-21). Claim 20 further includes means (e.g., telematics unit 120) for rendering the broadcast information with the vehicle presentation manager (see page 8, lines 5-8), and means (e.g., presentation manager) for sending the broadcast information to a presentation device (e.g., audio device 140 or display device 150) (see page 14, lines 22-25).

#### ***D. Independent Claim 21***

Claim 21 is an independent claim directed to another method of providing information to a mobile vehicle user. General reference is again made to Figures 1 and 3. The method includes receiving broadcast information at the mobile vehicle 110

(Block 320), wherein the broadcast information comprises information location coordinate data. (Page 13, lines 10-18.) The method further includes determining whether the information location coordinate data resides within a convex hull 210 (Block 330) incorporating data from an in-vehicle GPS unit 126. (See generally page 10, lines 2-6.) The method also includes presenting the broadcast information to the mobile vehicle 110 user based on the determination (Blocks 340 and 345). (Page 14, lines 16-25.)

Specific reference to portions of the application is provided with the understanding that non-referenced portions of the application may also be relevant. It should, thus, be understood that the claims are not limited by the particular references made above, but rather are fully supported by the entire disclosure.

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-3, 7-11, 15-17, 20 and 21 are unpatentable under 35 U.S.C. § 103(a) over *Wakamatsu* in view of *Dupray*.

Whether claims 4-6, 12-14, 18 and 19 are unpatentable under 35 U.S.C. § 103(a) over *Wakamatsu* in view of *Dupray*, and further in view of *Park*.

Whether claim 22 is unpatentable under 35 U.S.C. § 103(a) over *Wakamatsu* in view of *Dupray*, and further in view of *Stewart*.

## VII. ARGUMENTS

### **A. Rejection under 35 U.S.C. § 103(a) over *Wakamatsu* in view of *Dupray***

#### **a. Claims 1, 9 and 17**

In the Final Office Action dated February 24, 2006, the Examiner states that *Wakamatsu* teaches a method of providing information to a mobile vehicle user.



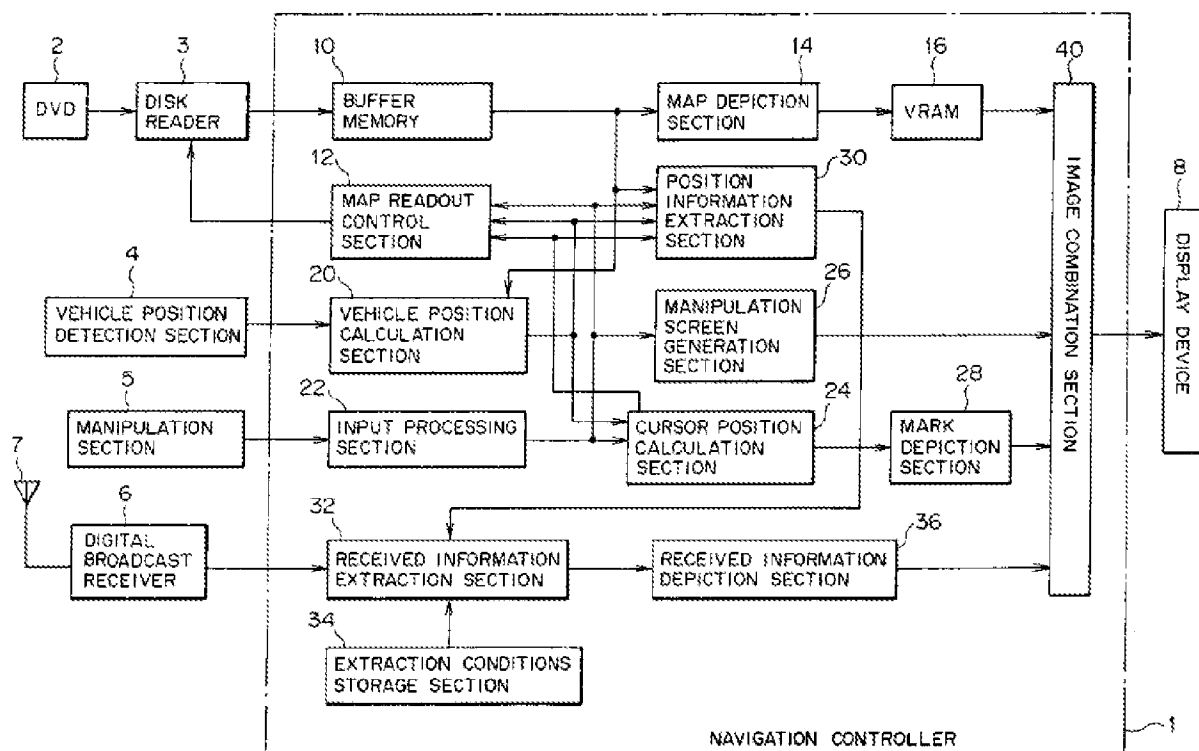
According to the Examiner, the method includes: receiving broadcast information at the mobile unit, wherein the broadcast information comprises information location coordinate data (citing column 1, lines 23-33 of *Wakamatsu*); determining whether the information location coordinate data resides within an area (citing column 1, lines 43-54 of *Wakamatsu*); and presenting the broadcast information to the mobile vehicle user based on the determination (citing column 1, lines 60-61 and column 2, lines 25-34 of *Wakamatsu*). The Examiner admits that *Wakamatsu* does not disclose the method step of determining whether the information location coordinate data resides within a convex hull, but relies on *Dupray* to supply this deficiency (citing column 6, lines 12-15 and lines 30-32 of *Dupray*). The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of *Dupray* into the system of *Wakamatsu* so that a convex hull of the verified locations may be used as a basis for determining a new target mobile station.

The Appellants respectfully disagree with the Examiner for the following reasons. Independent claims 1, 9 and 17 are directed to a method of providing information to a mobile vehicle user, a computer usable medium including a program for providing information to a mobile vehicle user, and a system for providing information to a mobile vehicle user, respectively. Claims 1 and 17 each recite “***determining whether the information location coordinate data resides within a convex hull,***” and “***presenting the broadcast information to the mobile vehicle user based on the determination.***” (emphasis added) Claim 9 similarly recites a “computer program code ***to determine whether the information location coordinate data resides within a convex hull,***” and a “computer program ***to present*** the broadcast information to the mobile vehicle user ***based on the determination.***” (emphasis added)

*Wakamatsu* discloses an information processing apparatus (i.e., a navigation system) that executes processes in order to receive information relevant to a specific target area, such as, e.g., a postal code, an area name, or the like. (See column 1, lines 7-11 and lines 48-51 of *Wakamatsu*.) As shown in Fig. 1 of *Wakamatsu* (provided below), the navigation system includes a vehicle position detection section 4 for detecting the current position of the vehicle (in longitudinal and latitudinal coordinates).

(See column 5, lines 57-61 and column 2, lines 25-26 of *Wakamatsu*.) A vehicle position calculation section 20 calculates the vehicle position and the vehicle direction on the basis of the information detected by the vehicle position detection section 4. (See column 6, lines 37-40 of *Wakamatsu*.) The navigation system further includes a position information extraction section 30 that extracts, e.g., the postal code as position information corresponding to the vehicle position calculated by the vehicle position calculation section 20. (See column 7, lines 4-7 of *Wakamatsu*.) Also, the navigation system includes a received information extraction section 32 that extracts necessary information (referred to as “received information” in *Wakamatsu*) from among various kinds of information included in a data broadcast (received by a broadcast receiver 6) on the basis of the postal code (i.e., the position information). (See column 7, lines 10-18 of *Wakamatsu*.)

**FIGURE 1 of *Wakamatsu***



In use, the navigation system of *Wakamatsu* processes and provides relevant information to the vehicle according to the method shown in Fig. 3 (provided below) and described column 8, lines 5-52 of *Wakamatsu*. In this method, the current vehicle position is calculated by the vehicle position calculation section 20 on the basis of a vehicle coordinate position detected by the vehicle position detection section 4 (Step 100). The position extraction section 30 extracts a postal code corresponding to the calculated vehicle position (Step 101). Then the position extraction section 30 judges whether the extracted postal code changed in comparison with the postal code extracted in a previous processing time (Step 102). If the postal code has changed in Step 102, the received information extraction section 32 selects specific information from the contents of the broadcast information relevant to the new postal code and extraction conditions (Step 103). When the specific information is extracted (i.e., received information), the received information is displayed on a display device 8 (shown in Fig. 1 of *Wakamatsu*) (Step 104).

FIG. 3

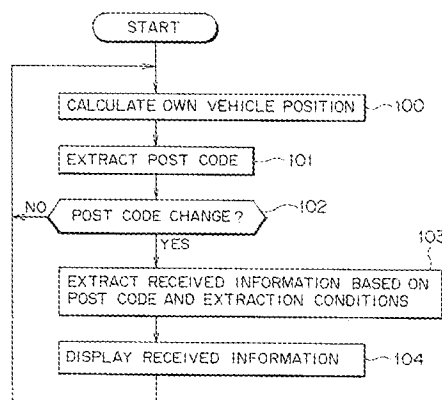


FIGURE 3 of *Wakamatsu*

Appellants submit that the navigation system of *Wakamatsu* processes and provides information to the vehicle **regardless of where** the vehicle is positioned. Further, the information provided to the vehicle is **not** limited to **a predetermined, bounded area**. For example, if the vehicle is in an area corresponding to postal code

A, the navigation system of *Wakamatsu* will process and provide information to the vehicle relevant to the area of postal code A. If the vehicle travels outside of postal code A and into the area of postal code B, then the navigation system of *Wakamatsu* processes and provides information to the vehicle relevant to the area of postal code B.

In sharp contrast, the Appellants' method, computer usable medium, and system of claims 1, 9 and 17, respectively, provide, to the vehicle, the broadcast information relevant to the area defined **within a convex hull**. A convex hull is generally defined by the Appellant, as the smallest convex polygon for which each point in the polygon is either **on the boundary or in its interior**. (See Appellants' specification, as filed, at least at page 10, lines 6-7.) Thus, location coordinate data of the broadcast information residing within the geographical region defined by the convex hull (i.e., the bounded area) defines the broadcast information that is received and conveyed to the user. (See page 9, lines 18-20 of Appellants' specification as filed.) This is clearly provided in Appellants' claim 1 (and similarly in claims 9 and 17), which recites the steps of "**determining whether** the information location coordinate data **resides within a convex hull**; and **presenting** the broadcast information to the mobile vehicle user **based on the determination**." (emphasis added) Thus, if the information location coordinate data does ***not reside*** within the convex hull, the broadcast information will ***not be presented*** to the mobile vehicle user.

Also, the navigation device of *Wakamatsu* provides or conveys broadcast information to a mobile vehicle user based on a determination of a **real time** or **instantaneous vehicle location**. (See, again, column 8, lines 5-52 of *Wakamatsu*.) Relevant information is, therefore, conveyed to the mobile vehicle user determined from separate and distinct **points** of the vehicle location in real time. Thus, one skilled in the art would be cognizant of the fact that the system or method of *Wakamatsu* is one-dimensional.

On the other hand, Appellants' method, computer usable medium, and system defined in claims 1, 9 and 17, respectively, provides information to a mobile vehicle user based on a determination of whether the information coordinate data **resides within the convex hull**. As provided above, the convex hull is a bounded geographical ***region***

**or area.** Thus, one skilled in the art would be cognizant of the fact that Appellants' method, computer usable medium, and system are two-dimensional.

Further, the convex hull recited in Appellants' claims 1, 9 and 17 is determined based on historical information and is **built up over time** from **learning** the driving habits and preferences of the mobile vehicle user. (See page 9, lines 27-28 of Appellants' specification as filed.) Thus, the convex hull **already exists** prior to when the broadcast information is received at the mobile vehicle. This is depicted in Appellants' claims 1, 9 and 17, which recite, "determining whether the information location coordinate data **resides within a convex hull.**" (emphasis added)

In sharp contrast, as provided above, the method or system of *Wakamatsu* provides or conveys broadcast information to a mobile vehicle user based on a determination of a **real time** or **instantaneous** vehicle location. Thus, the method or system of *Wakamatsu* would **not** be based on historical information. Accordingly, there would be no reason for the method or system of *Wakamatsu* to learn the habits of the vehicle user.

To establish a § 103 rejection, the Examiner "must show an un rebutted *prima facie* case of obviousness. In the absence of a proper *prima facie* case of obviousness, an applicant who complies with the other statutory requirements is entitled to a patent." *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998). (internal citations omitted). To establish a *prima facie* case of obviousness, an examiner must establish the following three criteria: i) there is some motivation or suggestion to modify the primary reference; ii) there is a reasonable expectation of success; and iii) the references must teach or suggest all of the claimed features. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). Appellants assert that the Examiner has not established a *prima facie* case of obviousness to render obvious independent claims 1, 9 and 17, and the claims depending ultimately therefrom, because the combination of the cited references does not teach or suggest each limitation of the claims in issue, which combination would render the claims unpatentable.

To reiterate from above, the Examiner relies on *Dupray* to supply the deficiency of *Wakamatsu* to establish the 35 U.S.C. § 103(a) rejection of the claims 1, 9 and 17.

The Examiner states that *Dupray* teaches the step of determining whether the information location coordinate data resides within a convex hull. The Examiner cites column 6, lines 12-15 and lines 30-32 of *Dupray*.

In *Dupray*, a method and system for locating wireless, handheld mobile stations (e.g., a cell phone) using multiple wireless location estimators is disclosed. (See column 3, lines 35-39 of *Dupray*.) As provided in column 5, lines 51-65 of *Dupray*, the location estimators are computed estimates or hypotheses of where the mobile station may be located. These estimators are adjusted or modified by retrieving other hypothesized results from a database of hypotheses, where the retrieved hypothesized results are those that are nearby the original estimate. These hypothesized results are then used to define a new adjusted estimate for a more accurate location of the mobile station.

In an example, provided in column 5, line 64 through column 6, line 15 of *Dupray* (as partially cited by the Examiner), the nearby hypothesized results may be locations that are the area centroids of the original estimate. The centroids may be used to retrieve corresponding actual verified mobile station locations. These verified mobile station locations may then be used to generate a new adjusted area that may be more accurate than the original estimate or hypothesis. A convex hull of the verified locations may then be used as a basis for determining (i.e., adjusting) a new location hypothesis of the target mobile station.

The concept of a convex hull has been known and has been used in a variety of applications, including the application taught by *Dupray*. In *Dupray*'s method and system, the convex hull is used to adjust new location hypotheses of the target mobile station. The method and system taught by *Dupray*, however, has nothing to do with providing broadcast information to a mobile vehicle user. Thus, it would not be obvious to a skilled artisan to incorporate a convex hull as taught by *Dupray* into the method, computer usable medium, and system of Appellants' claims 1, 9 and 17, respectively. Appellants therefore submit that the *Dupray* reference is irrelevant to the art defined by Appellants' claims 1, 9 and 17 and, further, is an improper reference for the 35 U.S.C. § 103(a) rejection of these claims and the claims depending ultimately therefrom.

Assuming *arguendo* that *Dupray* is considered to be a relevant reference, Appellants submit that *Dupray* does not supply the deficiency of *Wakamatsu*. In addition to the reason(s) provided above, *Dupray* does not explicitly or implicitly teach that the mobile station locating method and system would **also** use the convex hull to **define a geographical area** within which information location coordinate data may reside. The method and system further does not teach that if coordinate data resides in the convex hull, broadcast information is presented to the mobile vehicle user. In fact, broadcast data including location coordinate data is not even contemplated in the reference. Rather, the convex hull in *Dupray* is **only** used to **adjust** new location hypotheses of a target mobile station in order to determine a more accurate mobile station location. As such, *Dupray* would not, and does not, teach “determining whether the information location coordinate data resides within a convex hull.”

Further, the method and system of *Dupray* is useful for 911 emergency calls, tracking, routing, and people and animal location including applications for confinement to and exclusion from certain areas. (See Abstract of *Dupray*.) Thus, the location information obtained in the method and system of *Dupray* is generally reported to a third party. This is unlike the method, computer usable medium, and system of Appellants’ claims 1, 9 and 17, respectively, where the broadcast information is presented **to the mobile vehicle user** (i.e., **not** a third party).

For all of the reasons provided above, it is submitted that Appellants’ invention as defined in independent claims 1, 9 and 17, and in those claims depending ultimately therefrom, is not anticipated, taught, or rendered obvious by *Wakamatsu* and *Dupray*, either alone or in combination, and patentably defines over the art of record.

#### **b. Claim 21**

The method provided in Appellants’ claim 21 recites the step of “determining whether the information location coordinate data resides within a convex hull **incorporating data from an in-vehicle GPS.**”

Appellants reiterate all of the arguments provided above for independent claims 1, 9 and 17 and submit that the combination of *Wakamatsu* and *Dupray* also does not

teach all elements of claim 21. Appellants further submit that a skilled artisan would not combine *Wakamatsu* with *Dupray* to render claim 21 unpatentable under 35 U.S.C. § 103(a).

The navigation system of *Wakamatsu* includes a vehicle position detection section 4 such as, e.g., a GPS receiver, to detect the position of the vehicle. (See column 5, lines 57-61 of *Wakamatsu*.)

The method disclosed in *Dupray*, on the other hand, may employ a **supplemental** location device such as e.g., a GPS receiver for determining the location of a mobile station. The GPS receiver, however, is used in **addition** to another locating device for the reason that the other locating device may produce estimation errors. (See column 23, line 47 through column 24, line 50 of *Dupray*.) The GPS unit is, thus, used as a redundant system.

Also, *Dupray* provides several reasons why a GPS unit would not work well as a location device for locating a mobile station:

Another example of a location system using time of arrival and triangulation for location are satellite-based systems, such as the military and commercial versions of the Global Positioning Satellite system ("GPS"). GPS can provide accurate position determination (i.e., about 100 meters error for the commercial version of GPS) from a time-based signal received simultaneously from at least three satellites. A ground-based GPS receiver at or near the object to be located determines the difference between the time at which each satellite transmits a time signal and the time at which the signal is received and, based on the time differentials, determines the object's location. However, **the GPS is impractical in many applications**. The signal power levels from the satellites are low and the GPS receiver requires a clear, line-of-sight path to at least three satellites above a horizon of about 60 degrees for effective operation. **Accordingly, inclement weather conditions, such as clouds, terrain features, such as hills and trees, and buildings restrict the ability of the GPS receiver to determine its position.** Furthermore, the initial GPS signal detection process for a GPS receiver is relatively long (i.e., several minutes) for determining the receiver's position. **Such delays are unacceptable in many applications such as, for example, emergency response and vehicle tracking.** (emphasis added) (See column 2, lines 42-54 of *Dupray*.)



Further, as reiterated from above, the method and system of *Dupray* is useful for 911 emergency calls, tracking, etc., and, thus, the location of the mobile station is reported to a third party. This, however, is in sharp contrast to the navigation system of *Wakamatsu* (as well as the invention as defined in Appellants' claims 1, 9 and 17), which provides **to the user** (i.e., not a third party) information relevant to a specific target area.

For the foregoing reasons, it is submitted that *Dupray* **teaches away** from using a GPS unit as the sole method of locating individual mobile stations. As such, it is submitted that one skilled in the art would not combine *Dupray* with *Wakamatsu*.

It is, therefore, submitted that Appellants' invention as defined in independent claim 21, and in claim 22 that depends therefrom, is not anticipated, taught, or rendered obvious by *Wakamatsu* and *Dupray*, either alone or in combination, and patentably defines over the art of record.

**B. Rejection under 35 U.S.C. § 103(a) over *Wakamatsu* in view of *Dupray*, and further in view of *Park***

**a. Claims 4-6, 12-14, 18 and 19**

Claims 4-6, 12-14 and 18-19 were rejected (in the Final Office Action of February 24, 2006) under 35 U.S.C. § 103(a). For all of the reasons provided above, Appellants submit that all elements of claims 1, 9 and 17, from which claims 4-6, 12-14, and 18-19 ultimately depend, respectively, are not established by the combination of *Wakamatsu* and *Dupray*, and *Park* fails to supply the deficiency thereof. Specifically, *Park* fails to disclose determining whether the information location coordinate data resides within a convex hull, and presenting the broadcast information to the mobile vehicle user based on the determination.

As such, it is submitted that Appellants' invention as defined in claims 4-6, 12-14 and 18-19 is not anticipated, taught, or rendered obvious by the cited art, either alone or in combination, and patentably defines over the art of record.

**C. Rejection under 35 U.S.C. § 103(a) over *Wakamatsu* in view of *Dupray*,  
and further in view of *Stewart***

**a. Claim 22**

In the Final Office Action dated February 24, 2006, the Examiner rejected claim 22, which depends directly from independent claim 21, under 35 U.S.C. § 103(a). The Examiner states that *Wakamatsu* and *Dupray* teach all elements of claim 22, but the combination thereof fails to teach an area in which the mobile vehicle user often drives. The Examiner asserts that *Stewart* supplies the deficiency of *Wakamatsu* and *Dupray*. The Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of *Stewart* into the system of *Wakamatsu* and *Dupray* so that information is retrieved which is within a predetermined position relative to the repeated travel pattern.

Appellants respectively disagree with the Examiner for at least the following reasons. Claim 22 provides that the convex hull is determined in response to a plurality of received and stored longitudinal and latitudinal coordinate positions from the GPS unit. Claim 22 further provides that the convex hull represents an area in which a mobile vehicle user often drives.

*Stewart* discloses a method of determining the location of a mobile unit and evaluating a travel pattern as a function of related locations or at least one location as a function of time. Geographically relevant information is provided based on the evaluation. (See column 1, lines 6-10 of *Stewart*.) The mobile unit includes a transmitter, whereby the transmitter is used to transmit location information from the mobile unit over a span of time. (See column 1, line 66 through column 2, line 7 of *Stewart*.) A repeated travel pattern of the mobile unit is determined based on multiple location transmissions, and promotional information is ***provided to the predefined location*** (i.e., a point) determined from the repeated travel pattern. (See column 2, lines 14-19 of *Stewart*.) The travel pattern does not, however, define an **area** that the mobile unit travels. Appellants, therefore, submit that *Stewart* fails to teach an area in which the mobile unit travels, thereby representing a convex hull.

Further, the method of *Stewart* includes **transmitting** location information **via the mobile unit** associated with the mobile unit to determine the travel pattern. However, the method as defined in Appellants' claim 22 determines the convex hull in response to a plurality of received and stored longitudinal and latitudinal coordinate positions **from the GPS unit**. It is submitted that nothing is transmitted in the method of Appellants' claim 22. It is further submitted that any location information used to determine the travel pattern in *Stewart*, is transmitted from **the mobile unit**. Although a GPS unit is disclosed in *Stewart* (see, e.g., column 8, lines 44-48 of *Stewart*), the GPS unit is otherwise used to generate signals for **transmitting** location information of the mobile unit by the mobile unit.

For the reasons provided above, it is submitted that Appellants' invention as defined in claim 22 is not anticipated, taught, or rendered obvious by the cited references, either alone or in combination, and patentably defines over the art of record.

SUMMARY

The Appellants respectfully submit that claims 1-22 as currently pending fully satisfy the requirements of 35 U.S.C. §§ 102, 103 and 112. In view of the foregoing, favorable consideration and passage to issue of the present application is respectfully requested. If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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## VIII. CLAIMS APPENDIX

1. (Original) A method of providing information to a mobile vehicle user comprising:

receiving broadcast information at the mobile vehicle, wherein the broadcast information comprises information location coordinate data;

determining whether the information location coordinate data resides within a convex hull; and

presenting the broadcast information to the mobile vehicle user based on the determination.

2. (Original) The method of claim 1 wherein the broadcast information is received from a broadcast service selected from a group consisting of a radio data service, a radio broadcast data service, a satellite broadcast service, a radio broadcast service, and a wireless communications broadcast service.

3. (Original) The method of claim 1 wherein the information location coordinate data comprises a longitude and a latitude associated with the broadcast information.

4. (Original) The method of claim 1 further comprising:

recording a plurality of vehicle location coordinates; and

generating the convex hull from the recorded vehicle location coordinates.

5. (Original) The method of claim 4 further comprising:

updating the convex hull based on a coordinate input.

6. (Original) The method of claim 5 wherein the coordinate input is selected from a group consisting of a current vehicle location coordinate, a previous vehicle location coordinate, a recorded vehicle location coordinate input, a collection period, a collection frequency, a vehicle location coordinate retention period, a global positioning service quality indicator, and a user location coordinate input.

7. (Original) The method of claim 1 further comprising:

transferring the broadcast information to a vehicle presentation manager;

rendering the broadcast information with the vehicle presentation manager; and

sending the broadcast information to a presentation device.

8. (Original) The method of claim 7 wherein the presentation device is selected from a group consisting of a visual display, an audio device, and an audio-visual display device.

9. (Original) A computer usable medium including a program for providing information to a mobile vehicle user comprising:

computer program code to receive broadcast information at the mobile vehicle,  
wherein the broadcast information comprises information location coordinate data;

computer program code to determine whether the information location coordinate  
data resides within a convex hull; and

computer program code to present the broadcast information to the mobile  
vehicle user based on the determination.

10. (Original) The computer usable medium of claim 9 wherein the broadcast  
information is received from a broadcast service selected from a group consisting of a  
radio data service, a radio broadcast data service, a satellite broadcast service, a radio  
broadcast service, and a wireless communications broadcast service.

11. (Original) The computer usable medium of claim 9 wherein the information  
location coordinate data comprises a longitude and a latitude associated with the  
broadcast information.

12. (Original) The computer usable medium of claim 9 further comprising:  
computer program code to record a plurality of vehicle location coordinates; and  
computer program code to generate the convex hull from the recorded vehicle  
location coordinates.

13. (Original) The computer usable medium of claim 12 further comprising:  
computer program code to update the convex hull based on a coordinate input.

14. (Original) The computer usable medium of claim 13 wherein the coordinate input is selected from a group consisting of a current vehicle location coordinate, a previous vehicle location coordinate, a recorded vehicle location coordinate input, a collection period, a collection frequency, a vehicle location coordinate retention period, a global positioning service quality indicator, and a user location coordinate input.

15. (Original) The computer usable medium of claim 9 further comprising:  
computer program code to transfer the broadcast information to a vehicle presentation manager;  
computer program code to render the broadcast information with the vehicle presentation manager; and  
computer program code to send the broadcast information to a presentation device.

16. (Original) The computer usable medium of claim 15 wherein the presentation device is selected from a group consisting of a visual display, an audio device, and an audio-visual display device.



17. (Original) A system for providing information to a mobile vehicle user comprising:

means for receiving broadcast information at the mobile vehicle, wherein the broadcast information comprises information location coordinate data and at least one data string;

means for determining whether the information location coordinate data resides within a convex hull; and

means for presenting the broadcast information to the mobile vehicle user based on the determination.

18. (Original) The system of claim 17 further comprising:

means for recording a plurality of vehicle location coordinates; and

means for generating the convex hull from the recorded vehicle location coordinates.

19. (Original) The system of claim 17 further comprising:

means for updating the convex hull based on a coordinate input.

20. (Original) The system of claim 17 further comprising:

means for transferring the broadcast information to a vehicle presentation manager;

means for rendering the broadcast information with the vehicle presentation manager; and

means for sending the broadcast information to a presentation device.

21. (Previously presented) A method of providing information to a mobile vehicle user comprising:

receiving broadcast information at the mobile vehicle, wherein the broadcast information comprises information location coordinate data;

determining whether the information location coordinate data resides within a convex hull incorporating data from an in-vehicle GPS; and

presenting the broadcast information to the mobile vehicle user based on the determination.

22. (Previously presented) The method of claim 21 wherein the convex hull is determined in response to a plurality of received and stored longitudinal and latitudinal coordinate positions from the GPS unit, wherein the convex hull represents an area in which a mobile vehicle user often drives.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.